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REPORTS SUBMITTED

BY THE

DIRECTOR OF THE OFFICE OF CIVIL AND DEFENSE MOBILIZATION

ON

RECOMMENDATIONS IN THE EIGHTH ANNUAL REPORT

OF THE

JOINT COMMITTEE ON DEFENSE PRODUCTION

CONGRESS OF THE UNITED STATES

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CONTENTS

	Page
Statement of the chairman	v
Status of transportation mobilization:	
Introduction	3
Part I. Discussion	3
Part II. Agency statements on transportation dependence	10
Part III. Status and projection of OCDM transportation program	19
Stockpiling	25
Materials	28
Exchange of information on nuclear weapons effects	30
Advantages and disadvantages of dispersal	39
Guaranteed loans	45

STATEMENT OF THE CHAIRMAN

The Eighth Annual Report of the Joint Committee on Defense Production contained recommendations relating to transportation; stockpiling; the purchase of materials; a study on the exchange of information on the effects of radiation, fallout and blast damage, and related matters; a review of the results of Operation Alert to determine the extent to which industrial facilities essential to national defense are vulnerable to attack, including information revealed by Operation Alert on the advantages or disadvantages of dispersal in the event of attack; and guaranteed loans.

This progress report includes the information which has been submitted to the Joint Committee on Defense Production by the Director of the Office of Civil and Defense Mobilization on recommendations contained in the Eighth Annual Report of this committee.

PAUL BROWN, *Chairman.*

REPORTS SUBMITTED BY THE DIRECTOR OF THE OFFICE OF CIVIL AND DEFENSE MOBILIZATION ON RECOMMENDATIONS IN THE EIGHTH ANNUAL REPORT OF THE JOINT COMMITTEE ON DEFENSE PRODUCTION

STATUS OF TRANSPORTATION MOBILIZATION

March 31, 1959

In recommendation No. 2 of the Eighth Annual Report, this committee recommended that the Office of Civil and Defense Mobilization furnish a report setting forth the current status of the transportation program and the extent to which each department and agency must rely upon transportation to meet objectives in the event of an emergency.

The following report on the status of transportation mobilization was submitted to the Joint Committee on Defense Production by the Director of the Office of Civil and Defense Mobilization.

EXECUTIVE OFFICE OF THE PRESIDENT,
OFFICE OF CIVIL AND DEFENSE MOBILIZATION,
OFFICE OF DIRECTOR,
Washington, D.C., April 7, 1959.

Hon. PAUL BROWN,
Chairman, Joint Committee on Defense Production,
Washington, D.C.

DEAR MR. BROWN: In response to the recommendation contained in paragraph 2, Report No. 1 of the 86th Congress, Eighth Annual Report of the Activities of the Joint Committee on Defense Production, there is submitted herewith a report on the current status of the transportation program of the Office of Civil and Defense Mobilization.

This report includes statements from various Government departments and agencies, setting forth the extent to which they must rely upon transportation to meet objectives in event of emergency.

Respectfully submitted.

LEO A. HOEGH.

Introduction

The mobilization of the Nation's transportation resources is part of the overall nonmilitary defense program for which the Congress has provided and which the President has established in the Office of Civil and Defense Mobilization.

The transportation economy and transportation's role in defense are so woven into the whole of the national economy and plans for meeting today's threat to the Nation, that any review of transportation by itself is apt to leave out aspects of the larger picture needed to bring it into perspective.

OCDM sees transportation as a vital service to other emergency programs and activities. It is not an end in itself. It provides the means for redistributing the Nation's people and goods in response to social, industrial, and defense conditions in peace or war. Therefore, we see it as something fluid and ever changing, which cannot be put down and totaled and stored away or held on the side awaiting eventual use.

Transportation's stature in defense, then, we regard as essentially the same as its stature in current commerce. To the degree that the latter is healthy and responsive to needs, the other will likely be successful in time of serious demands.

OCDM accomplishes most of its transportation measures through delegate Federal agencies and the State and local governments. Perhaps our greatest contribution to the effort is our bringing together into a single working complex these diverse agencies and interests. This is largely an intangible thing, but we feel it to be reflected in government operational capability backed up by a strong professional executive reserve, and industrial alertness and ability to respond to disaster and emergency needs.

Part I

DISCUSSION

A satisfactory state of preparation to perform emergency transportation tasks requires a flexible approach, since the nature of the emergency cannot be known in advance and may vary widely.

A. LONG-TERM MOBILIZATION

Transportation under full mobilization without attack on this country presents conditions with which we have had experience in the past. The Government is in a good state of readiness to perform functions which would fall upon it in such a contingency. Both organization requirements and actions needed from the Government are known, so far as their general character is concerned. The experience of World War II was used with success in meeting the Korean emergency, and subsequent mobilization plans were revised in the

39679—59——2

light of that exprience. Ample executive authority is possessed or could be quickly provided, and the necessary organizational expansion could be rapidly accomplished, building upon the staffs of existing agencies.

Long-term mobilization will occasion a rapid increase in freight movement and will generate significant requirements for passenger traffic as well. Probable traffic requirements have been appraised on a number of occasions and estimates adjusted to changing military programs and assumptions. On the whole, the Government is prepared to take necessary control measures and priority actions without loss of time.

The condition of the transportation industries is not, however, in every respect satisfactory. All forms of transportation have some excess capacity at the present level of business and, given months, all are capable of expansion. The depressed level of business over the last year and a half has led railroads and certain water carriers to defer maintenance on a considerable scale and greatly to reduce capital expenditures. Consequently, any rapid increase in the volume of traffic might result in equipment shortages of considerable proportions.

Characteristically all forms of transport do not share equally in the increase of traffic which is generated domestically as a result of supporting military operations abroad. Withdrawal of aircraft and oceangoing vessels from the domestic trades is generally necessary. Military requirements for hard goods may force curtailment of automotive production and thus restrain the growth of motor transportation. Military involvement on a large scale, particularly if it is coupled with the loss of foreign petroleum and the diversion of domestic petroleum supplies, may force curtailment of consumption for domestic automotive transportation.

Any or all of these contingencies will tend to place upon the railroads a burden disproportionate to that currently encountered. Although line and terminal capacities are generally adequate for an expansion of as much as 50 percent in rail traffic, and motive power is believed adequate to handle a larger volume than in any postwar year, freight and passenger train car equipment will experience shortages early in any sharp expansion of rail traffic. The effects of such shortages might be minimized by reinstating a heavier maintenance program for freight cars, by the use of emergency devices for improvement of car service, heavier loading of cars, and faster car turnaround. Nevertheless, it is probable that not all transportation requirements can be met.

This situation arises from long-term trends over which the mobilization agencies have little, if any, control. The rail share in peacetime traffic has been gradually declining, notwithstanding the wide recognition that railroads would be called upon to participate very heavily in any mobilization situation. The financial condition of the rails has been impaired, and they have been unable to generate capital adequate to keep their plants abreast of technological developments and traffic requirements. Remedies for this situation would appear to lie in corrective long-term transportation policies. The enactment of the Transportation Act of 1958 may mark the beginning of an improvement in the financial position of the railroads. Additional remedies must be discovered and applied to improve the physical

capability and efficiency of the railroads. And the carriers themselves must be receptive to proper remedies.

No direct measures are now available to Government agencies for stimulating the provision of additional rail capacity. Rapid tax amortization, when it was available, may have engendered programs for modernizing motive power, equipment, and facilities, and resulted in some increase of capacity. The feasibility of stockpiling cars or components has been studied, but the cost and other practical difficulties have deterred the development of such a program. Measures designed to improve the long-term financial health of the railroad industry would do more to improve the strength of the mobilization base in this industry than would any measures designed to deal specifically with indentifiable physical shortages by financing standby capacity.

The adequacy of the merchant marine to meet defense needs depends on a number of factors: the scale of overseas military operations requiring logistic support; the scale of war-supporting civilian activity requiring imports of raw materials and fuels; the scale of military and other aids provided to friendly nations; the extent and effectiveness of enemy interdiction by submarine and air attack; the availability of ships under effective U.S. control; the extent of free-world involvement; and the ability of Allied nations to contribute to the shipping pool.

The possible variations in the import of these factors are obviously great. The only valid generalizations are: first, in any involvement equivalent in scale to the Korean war, merchant shipping will be in short supply, but the shortage will be manageable; and, second, to successfully handle larger scale involvements will require extremely tight controls and maximum effort.

The most important current action program in the maritime area is the timely replacement of the privately owned U.S.-flag merchant fleet, most of whose ships were built during World War II and are rapidly approaching obsolescence. These are the ships that would be immediately available to meet initial requirements in emergency pending activation or conversion of the National Defense Reserve Fleet and acquisition of additional vessels by other means.

In aviation more than other modes of transport, military considerations are paramount. The allocation of civil airlift to the Department of Defense through the Civil Reserve Air Fleet (CRAF) is designed to meet airlift requirements as stated by the military. This fleet is composed of long-range, four-engine aircraft of the civil air carriers, capable of overseas flights, and preselected as being most suitable to the needs of the Military Air Transport Service. The CRAF plan provides for the early integration of these aircraft into MATS service. Although this will reduce the number of aircraft available for civil air transportation service, plans have been laid for the use of remaining aircraft in the War Air Service Pattern (WASP). Readjustments will be made in route patterns as required to meet the needs of essential traffic, and utilization of the aircraft will be improved by increasing the number of hours flown per day. It should also be possible to increase load factors from the normal 65 percent of available capacity to approximately full capacity.

B. TRANSPORTATION UNDER NUCLEAR ATTACK

Minor and scattered attack upon domestic installations would require no great change in procedures from those just discussed. Large-scale nuclear attack, however, creates fundamentally different conditions and gives rise to a quite different set of problems.

A large number of hypothetical attack patterns representing probable enemy capabilities has been studied over the last 4 years in order to learn the implications for transportation. It is characteristic of all the attack patterns that transportation plant and equipment survive better than general industrial plant and population. This is due to the fact that transportation facilities make up a highly dispersed target system as a result of which the proportion of the total system located within probable target areas is substantially lower than the proportions of total population and industrial production within those areas. With the added risk of widespread fallout, however, transportation personnel have become more vulnerable than transportation plant or equipment. This danger to and adverse effects upon personnel could prove to be the major limiting factor in operating the transportation system in a postattack environment.

The high survival rate of transportation facilities may be partially offset by increase of shipper demands for service. Transportation will perform immediately following attack to evacuate peoples, rush aid to damaged areas, resupply military bases, and restore utilities. These types of operations, including measures for dispatch control, traffic regulation, routing around damaged areas, etc., have been incorporated into the survival plans of most cities and States. Such plans are not in conflict with other measures designed to protect populations; rather, they supplement other plans in accordance with local requirements under projected possible situations.

Operations through wide bands of fallout, other than in exceptional cases, will not be immediately feasible. Where transportation cannot be routed around contaminated areas, earliest limited service for the movement of emergency supplies and personnel will likely be provided by air. Flights can be made over affected areas as soon as the bulk of the contaminated material has been precipitated. Loss of large airports near metropolitan centers, and critical shortages in high-octane fuels, may force increased use of smaller aircraft and smaller airports for both short and relatively long distance operations.

Marine operations in coastal waters, on the Great Lakes, and on the rivers would not be impeded by fallout and can perform useful tasks even when port facilities have suffered severe damage. Consideration has been given to the use of portable-pier facilities, over-the-beach operations, and similar improvisation where port facilities have been destroyed or rendered inaccessible from the land side. Water transportation may provide the only access to certain hard-hit coastal areas for some period of time.

Some land transportation routes may be operated through fallout zones within a comparatively short period where facilities have not suffered physical damage. However, operations in contaminated areas must be carefully controlled to keep cumulative exposures to operating personnel within tolerable limits. Our ability to select the safest routes by motor transportation and to provide effective protection to rail-transportation crews would make these modes of transporta-

tion dependent partners under these circumstances. The trucks would be able to go many places that the trains could not. But the comparative ease with which train crews might be protected would require that the trains perform some of the more hazardous tasks. Combined relay services would probably be initiated in many areas.

Wherever rail facilities were damaged or were being rehabilitated, highway transportation would link together other segmented lines and systems. However, as more stringent economies in manpower and fuels were required, through rail capacity to meet increased traffic would have to be assured. The rate of decay of residual radioactivity should permit resumption of rail service between safe areas during the period from 7 to 30 days following attack. Particularly wide bands of intensive fallout might impose further delay.

Freight and passengers can be handled safely without any special protection on routes finally opened for repeated passage by train crews, bus or truck drivers. Canned foods require no special protection. Livestock can be safely moved soon after it is practicable to reopen rail and truck routes. Bulk grains and similar items can be handled in covered hopper or dry-flo equipment or in tight containers in conventional equipment which will exclude radioactive dust. Water can be handled in clean tank cars and trucks and remain safe for human consumption. Most nonfood items can be effectively decontaminated after movement in conventional equipment.

Implications of these conditions are that people in areas which are free from contamination will generally have to survive upon their own resources for some time before substantial aid from other areas can be counted upon. They will also be obliged to support populations which have evacuated adjoining contaminated areas, and to the extent feasible, the populations which are pinned down in shelters. Impeding physical damage to transportation will generally not be found except in areas where no population will survive, since transportation facilities (highways, trackage, bridges) are generally more resistant to physical and thermal damage than housing and most classes of industrial facilities.

The aggregate volume of transportation is governed in large measure by the level of industrial activity; and a sizeable proportion of tonnage moved consists of industrial raw materials, fuels, intermediate manufactured products, and produced durable goods. Where paralysis of a large part of the industrial system occurs, as is characteristic of attack patterns heavy enough to produce major disruption of the transportation system, the heaviest proportion of normal freight traffic ceases to be generated. During the period while industrial production is being resumed, transportation recuperation will also occur. And as transportation plants will generally survive better than industrial plants it seems clear that transportation capacity can be built up rapidly enough to support the attainable rate of industrial recovery.

In the emergency period, therefore, it appears that where operations can be conducted at all, the movements of survival items and personnel will be of such an extent in proportion to normal high volume that they probably can be handled Within 30 to 60 days it should be possible to move preexisting stocks of food, housing materials, and other goods of emergency character from wherever they are available to points of need. From this we may fairly assume that, except in isolated instances, there will be sufficient physical transportation

capability to perform tasks at the outset. The early problem, then, is really not physical capacity, but one of organization and control. The longer range problem will be that of building to meet expanding industrial output.

One special problem which may affect all transportation capability should be noted. Every form of transportation has become almost wholly dependent upon petroleum products. Petroleum-refining capacity is so located that a heavy attack on industrial targets may effect a significant reduction in output. Petroleum transportation itself is less vulnerable than the transport system as a whole. The largest part of the job is performed by the pipeline system which is relatively invulnerable. Offshore supply by tankers is a possibility for some areas. The risk is less, therefore, in the distribution of petroleum than in the prospect that refinery sources may be taken out of production. Shortages of fuel may necessitate extreme conservation measures for an extended period. Rail and water carriers have a very low fuel consumption per unit of transportation by comparison with motor and air carriers. Moreover, they can use effectively inferior qualities of fuel. It may prove necessary to perform as much transportation as possible by rail and water. Certain tasks can only be performed, however, by motor or air. Hence, careful control and distribution of existing stocks will be necessary.

C. ORGANIZATION FOR OPERATIONS UNDER EXTREME CONDITIONS

For a considerable period after World War II, planning for the wartime control of transportation followed the pattern which proved successful in that war and which demonstrated its effectiveness again during Korea. As nuclear capability and weapons delivery capacity of possible enemies developed, the operating control of transportation under an emergency situation was reexamined and studied. This study has led to new concepts for organization in emergency and to the beginnings of an effort to insure Government operating capability in the face of massive attack.

Unlike some economic functions which are important in an emergency, transportation has no single organizational focal point in the Federal Government's structure in peacetime. This makes it necessary to draw together into a temporary agency those functions and activities of concern during an emergency. Such an organization is provided for, and some of its top personnel have been designated. Personnel of the existing regular agencies would, of course, be employed to the largest possible extent.

Steps are underway to perfect a nationwide organization capable in wartime of bringing together the many facets of government control over transportation and of greatly improving their operational capability. Present Government readiness is based upon relationships existing between Federal transportation agencies and between them and OCDM. The current effort is designed to strengthen this relationship through the development of national and regional transportation organizations, sponsored and provided with continuity by the existing agencies, and bolstered by professional executive reservists trained to carry on key Government assignments in wartime.

While the tasks themselves must be performed by the carriers and their employees, it is clear that Government leadership must be pro-

vided at a regional and local level which enables surviving resources to be mobilized and used to the common good. In the event of a massive attack, the national headquarters of Federal agencies will likely be out of contact with transportation operations in most of the country for a considerable period of time, and contacts will only be gradually restored. Field offices of the agencies, particularly as respects domestic surface transportation, are not of sufficient strength or stature to discharge the full task which will be pressed upon them. This applies also to the present regional offices of OCDM, although we have some staff. Hence it becomes necessary to create organization at the regional and local levels composed of competent operating officers drawn from the ranks of the carriers. These must be clothed with ample authority, made fully aware of the hazards peculiar to nuclear attack, and trained in the methods of coping with those hazards. For this purpose the executive reserve program is being employed.

An emergency organization concerned with all transportation (except pipelines and transportation organic to the military services) will be formed as rapidly as possible after emergency. The personnel for this emergency organization will be preselected for the jobs they are expected to fulfill. People from all forms of transportation and from using industries as may be needful, as well as personnel from appropriate segments of existing Federal agencies, will be embraced within this organization. They will have the task of seeing to the reestablishment of essential services and the rehabilitation of necessary transportation after attack. The principal strength of the organization will be in regional offices staffed with people familiar with local transportation conditions—the most able men we can tap—who can be expected to be at the scene of operations all over the country when the attack comes. The regions will also be organized to operate autonomously in cooperation with State and local authorities until a degree of national control can be reestablished.

The major organizational problem exists in the field. Here an organization in depth is to be provided, which can coordinate the operations of all forms of transportation and which, under OCDM regional guidance, can operate autonomously when cut off from the Federal level and from adjacent regions. Designation of regional transportation directors and their principal assistants is imminent. Each regional transportation director will be responsible for developing and staffing with reservists, an organization adequate to meet the needs of his region.

OCDM will undertake to instruct personnel of the regional organization in the contingencies to be faced under nuclear attack, the hazards presented and resources to combat them, and the nature of transportation tasks to be performed in conjunction with civil defense and military authorities at all levels. Both the organizational plan and the program for instructing reservists have been discussed with representative industry leaders, and have met with general approval.

While the development of this organization will greatly improve readiness to render transportation services in emergency, the present posture is not without strength. Both the Federal Maritime Administration and the Federal Aviation Agency have farflung organization and large capacity for insuring the continued operation of the forms of transport with which they are concerned. Both have cooperated

fully with NATO countries in the development of procedures for overseas lift. An air-priorities system has been developed, capable both of domestic and international application, and priorities officers designated. Close cooperation with the carriers has been developed.

In domestic surface transport, the large numbers of carriers involved, the fact that they will be operating in and through disaster areas, and the fact that there is no peacetime Government organization having direct concern with their operations, all make for a less clear-cut and more difficult task. Considerable progress has, however, been made. A series of standby orders, developed and promulgated by the ICC, are designed to set aside normal restrains upon carrier operations, to provide flexibility, establish procedures for dealing with certain anticipated carrier problems, and delegate authority to the field.

All OCDM regional offices have obtained the cooperation of the field offices of the Federal transport agencies and of representative carrier officers, in providing operating capability at the regional level. Close contact is maintained with State civil defense directors and their transportation organizations, and transportation is recognized and provided for in all State survival plans.

Much effort has been expended in briefing representatives of the transportation industries, so that they may be informed of conditions which they might have to face. The Radiological Defense School has been giving instruction in all regions to representatives of the industries, including basic facts about radiological fallout and instruction in the use of instruments and in the control of employee exposure.

Standing procedures are in effect governing the methods by which transportation is to be secured and the methods for determining priority or allocating available capacity. These procedures apply to the present organization; through them, a transition to wartime methods will be provided so that prospective operating effectiveness is maintained and steadily improved.

PART II

AGENCY STATEMENTS ON TRANSPORTATION DEPENDENCE

Following are statements of representatives of various Federal departments and agencies in which they express their reliance upon transportation to meet objectives in event of an emergency. Due to the short period for preparation of responses, agencies were not asked for detailed facts or data on transportation requirements.

1. U.S. Department of Commerce

It is our belief that in a post attack period, one of the first tasks confronting the Nation would be the temporary rehabilitation of a suitable transport system capable of moving supplies and people adequately. Prepositioning of supplies does not eliminate the need for adequate transportation, although in some measure it may lessen the total requirement if the devastation is as widespread as is currently assumed.

It is our belief that the organizational structure to control this important segment of our national economy should be so

fashioned that controls can be exercised at the regional level and below, in a most effective manner. National direction, if operable, could operate in those vital areas necessary to human survival, such as the airlift of those items easily carried and most effective in conserving of human life.

It is most difficult to comprehend the effect on our national industrial structure, without a reasonably adequate transport system in the event of nuclear war (W. C. Truppner, Director, Office of Industrial Mobilization, Business and Defense Services Administration, U.S. Department of Commerce).

2. Housing and Home Finance Agency

The Housing and Home Finance Agency would have to rely upon transportation for the movement of—

(*a*) Building and construction materials and supplies;
(*b*) Construction equipment;
(*c*) Housing components such as prefabricated panels, etc.;
(*d*) Mobile units such as trailers, etc.

Also, in cooperation with OCDM and other agencies, if it is decided to relocate population from one area to another, this places an additional requirement on transportation.

The nature and extent of the emergency, together with many other factors, would affect our total transportation requirements, so no attempt is made here to estimate requirements (B. Douglas Stone, Director, Defense Planning Branch, Division of Economics and Program Studies, HHFA).

3. General Services Administration

There are 37.2 million short tons of industrial raw materials and 20,000 short tons of machine tools in inventories in GSA custody.

Additionally, GSA has an average monthly total of 48,888 short tons of housekeeping items shipped into and out of depots, plus an estimated 24,267 short tons shipped direct from vendors to consuming agencies.

The above tonnages are dependent upon commercial transportation.

Other agencies' tonnage, for which GSA furnishes traffic management services, have not been included (Samuel J. Scott, Commissioner, Transportation and Public Utilities Service, General Services Administration).

4. International Cooperation Administration

In carrying out the objectives of the mutual security program, ICA relies almost entirely upon commercial transportation of commodities and equipment which it finances. Under Public Law 664 (83d Cong.), now incorporated in the Merchant Marine Act of 1936 as section 901(b), it is mandatory that we use U.S.-flag privately owned commercial vessels for at least 50 percent of the commodities and equipment transported on ocean vessels. Section 413 of the Mutual Security Act of 1954, as amended, requires that this

39679—59——3

agency use private trade channels to the maximum extent practicable in carrying out our program.

For your information, we attach hereto a listing of total tonnage of commodities and equipment financed by ICA for fiscal year 1957 to 1960, inclusive. The figures for fiscal year 1959 and 1960 are estimates. This listing indicates the quantity moved by ocean transportation from the United States and from sources other than the United States, as well as the cost of ocean freight paid out by ICA. While this listing indicates the quantity moved by commercial vessels, obviously almost all of it moved from point of origin inland from sea ports and required the use of commercial transportation, such as railways, trucks, etc. (table 1) (Arthur G. Syran, Director of Transportation, ICA).

5. Atomic Energy Commission

AEC's peacetime activities are based on the requirements necessary to fulfill its production, manufacturing, research and development programs during mobilization periods. Therefore, no significant acceleration over present-day activity is anticipated.

In view of the above, AEC's postattack commercial transportation requirements may be expected to equal our present estimated annual rate of 112,000 units (about 93,000 rail and 19,000 motor units) to transport approximately 810 million ton-miles of freight (John A. Derry, Director, Division of Construction and Supply, Atomic Energy Commission).

6. Department of Defense

The reliance of the Department of Defense on the commercial transportation resources of the Nation would vary from reliance on all modes of carriage under one set of emergency conditions to emphasis upon a single mode or a combination of modes in other situations, dependent upon the nature or magnitude of the emergency and/or locale of the theater of operations. Whatever the nature of military requirements, it is anticipated that almost total reliance would be placed upon commercial transportation within the United States to support the national defense.

In assuring the availability of transportation resources to meet military requirements under emergency conditions, the Department of Defense necessarily maintains close and continuing relationships with the land, sea and air carrier industries.

Special programs, such as the war air priority system and the civil reserve air fleet, have been developed to assure the adequacy of transportation resources in the event of an emergency.

The Department of Defense has a continuing program for pipeline construction to major air bases. Eighteen Air Force bases are now connected to commercial pipelines. In addition, tank-truck operators have agreed to commit commercial tank trucks for the delivery of planned fuel requirements.

A lease/storage program, to provide sleeping cars, is in effect to augment rail passenger resources. These cars have been declared surplus to commercial needs, and would otherwise have been scrapped. Ocean-transportation programs provide for the emergency allocation of shipping from either commercial vessel operators or National Maritime Reserve sources (Earl B. Smith, Director for Transportation and Petroleum Policy, Office of the Assistant Secretary of Defense (Supply and Logistics)).

7. Department of Agriculture

Essential per capita movements of agricultural products during a postattack period should be maintained at as near normal levels as possible, but they could be considerably less than normal rates without endangering the health of our people. Part of the reduction in transportation requirements could be accomplished by controls over the kinds of foods shipped long distances. For example, the postattack diet in many areas might include reduced amounts of fresh and frozen fruits and vegetables and larger amounts of more concentrated food, such as potatoes, oils, and grain products. Our plans call for substantial reductions in shipments of nonedible products, such as animal feeds, cotton, and tobacco, during a period when transportation is most restricted. It is also probable that exports of agricultural products would be drastically curtailed in a period when transportation is severely limited.

The average American now receives about 1,166 pounds of food per year, a total of about 86 million tons for the total current population. The movements of food by truck and rail are currently estimated at 621 million tons, which constitute 120 billion ton-miles. The estimated average distance of rail shipments of food is 440 miles, or a total of about 97 billion ton-miles per year. The average distance of truck shipments of food is estimated at about 50 miles, indicating a total of 23 billion ton-miles. These shipments include other farm products, as well as foods and beverages.

An attack could result in shortages of some types of food and surpluses of others, but distribution would be a major problem. An expected abundance of total foods would make it possible to increase consumption of some concentrated foods to offset reductions in bulky types of food in order to better utilize the available transportation facilities. The significance of adjustments that could be made is indicated by a review of the total shipping used by various types of commodities. Fresh and frozen fruits and vegetables, for example, require about 19 percent of the total ton-miles of shipping used for all edible items, but they provide only 4.2 percent of the calories of the normal diet. Also, agricultural products, not usable as food, utilize about 25 percent of the total transportation used for such products. These types of shipments could be drastically reduced or postponed during a temporary period of greatly restricted transportation.

Both railroad and truck transportation would be essential to agriculture in a postattack period. Railroads now move about 29 percent of the total tonnage of all shipments of food, but, because of the longer hauls, rail shipments constitute about 81 percent of the total ton-miles of all food movements. (See table 2.) While there are some long-distance food shipments by truck, the bulk of the truck movements of food are from the farm to the local markets and from processors and wholesalers to retail outlets. There are also many short movements from processing plants to other concentration points.

Long-distance truck movements of food account for about 70 million tons and 17 billion ton-miles of shipping. These long-distance movements include about 16 percent of the tonnage and 76 percent of the ton-miles of all food shipments by truck, and about 11 percent of the tonnage and 14 percent of the ton-miles of all rail and truck movements of food.

Food shipments by railroads represent about 13 percent of the total tons and 20 percent of the ton-miles of all railroad freight. It would appear essential that at least half the normal rail transportation per capita be provided for movement of food beginning 2 to 4 weeks after a nuclear attack. Railroad-transportation requirements for food would subsequently increase to nearly normal capacity on a per capita basis. In the case of trucks, it would be essential that the amount of postattack truck transportation available per capita for local movements of food be maintained as near to normal as possible in the immediate postattack period. A temporary reduction of about 40 percent in the requirements for total truck transportation might be accomplished by prohibiting long-distance shipments of fresh fruits and vegetables and nonedible items and through limitations on cross hauls. Near normal per capita amounts of truck transportation would be required within 30 days after an attack for the distribution of food to the surviving population (Dwight W. Meyer, Director, Food and Materials Requirements Division, Commodity Stabilization Service, U.S. Department of Agriculture).

8. Department of the Interior

(*a*) *Electric power.*—The production of electric power is dependent upon fuel: coal, oil, and gas. During the year 1956 generation of electric power by these various fuels was as follows:

Fuel	Billions of kilowatt-hours	Percent
Coal	339	56
Oil	36	6
Gas	104	17
Hydro	122	21
Total	601	100

No commercial transportation is needed in the case of generation from hydro. It will be noted that 56 percent of total generation was from coal. This totaled 161 million tons (32.5 percent of the coal used in the United States). Coal during the same period, was shipped as follows:

Mode of shipment	Million tons	Percent of total U.S. shipments
All rail	74	15.0
River	37	7.5
Great Lakes	15	3.1
Tidewater	15	3.1
Truck	13	2.6
Tramway and conveyor	6	1.2
Total for electric power	160	32.5

Utilities, on an average, have about 3 months' stockpile of coal on hand. Consequently, commercial transportation for coal is necessary between D plus 60 and D plus 90 days. The quantity essential for continued operation of generating plants would vary from about 40 to 50 percent of normal by D plus 90 days to about 80 percent of normal by D plus 1 year. Normal methods of coal transportation could be changed in some cases, yet the electric power industry is dependent almost entirely upon commercial transportation for whatever supplies are received.

Oil used by the power industry totaled approximately 68 million barrels and was moved mainly on tidewater by commercial transportation. The industry used 1,200 million MCF of gas moved by pipelines not under the control of the electric power industry.

(*b*) *Solid fuels.*—The coal industry produced 518,040,000 tons of anthracite, bituminous coal, and lignite during the year 1957. Ninety-eight percent of this production required commercial transportation from the producing mine to the consumer. It is reasonable to expect that while coal shipments will be decreased during the survival period, shipments will need to be increased after D plus 30 or D plus 60 days and practically all transportation must come from commercial carriers.

The coke industry used 108,409,000 tons of coal in 1957, practically all reaching the ovens via some form of commercial transportation. The coke industry produced 75,951,000 tons of coke and 4,913,000 tons of breeze during the same year. Large amounts are used by blast furnaces adjacent to the coke ovens. A reasonable estimate indicates that in 1957 shipments by commercial transportation amounted to approximately 25 percent of the 80,864,000 tons of coke and breeze produced. In addition, the shipment of coal chemicals from byproduct coke plants was approximately 4,400,000 tons.

Commercial transportation for solid fuels includes rail, truck, river, lake, and coastwise facilities and various combinations of these types of facilities.

(*c*) *Minerals.*—The metal-mining industry is dependent on commercial transportation for practically all shipments of minerals and raw metals from producing areas to fabrication plants. During the survival period it is expected that such shipments would practically cease. However, during reconstruction these products will depend on commercial transportation; it is not possible to estimate any time periods as to when commercial transportation would be needed.

(*d*) *Fisheries.*—The domestic fisheries yield catches annually total about 4,750 million pounds. In addition, large quantities of fishery products are imported into the United States; these would, however, probably cease during an emergency.

Nearly all of the domestic catch is received at points on the Pacific and Atlantic coasts and must be transported to consumer centers. In any emergency, fishery products could provide an important source of food in lieu of meat. This is expecially so at or near the coastal areas. It is estimated, based on recent exercises, that the fishery fleet could provide fishery products which would require on about D plus 30 days 40 percent of normal commercial transportation; on D plus 60 days, about 60 percent of normal transportation. Transportation required is not necessarily cross country, but could be confined to local areas.

(*e*) *Petroleum and gas.*—During peacetime the petroleum and gas industries rely upon commercial transportation for movement of petroleum as follows:

	Percent
Petroleum-pipeline capacity	100
Tank-truck availability	100
Tanker availability	100
Railroad-tank-car availability	75
Tank-barge capacity	75

While it is expected that the availability of these different methods of transportation would decrease, some quite drastically, during time of national emergency any movement of petroleum products would still be dependent upon what commercial transportation is available (Mr. Edward Frye, Assistant to the Secretary, Department of the Interior).

9. Health, Education, and Welfare

(*a*) *Food and Drug Administration.*—The Food and Drug Administration anticipates that it will have to rely heavily upon commercial transportation to carry out its delegated and essential statutory responsibilities in the event of an emergency. Commercial transportation would be needed by the Food and Drug Administration, not only to supplement what may remain of its already meager fleet of automobiles for transportation of personnel, but also for transportation of samples, equipment, and supplies. Mass deployment of FDA personnel from areas of less need to those of greater need, plus recruitment of personnel for emergency service, would necessarily increase the demands on commercial transportation.

(*b*) *Social Security Administration.*—The responsibility of the Social Security Administration during the period immediately following an emergency will be to assist people in finding security and staying alive. Transportation needs will be related to organizing and moving materials and people to safer areas.

If evacuation is ordered, either total or in part, the SSA will be required to assist in the care of evacuees. In both of these circumstances, we would be compelled to rely upon commercial transportation or transportation provided by Government agencies such as city transportation departments, or the military.

As soon as it is possible to move supplies to people, both evacuees and those who are pinned down by fallout, we would rely in a major way on commercial transportation to do the job. This period will also involve moving of people who may have been sheltered in very temporary quarters, to better shelter; this also will require transportation. The transportation needs in these various activities would include buses or other transportation suitable for moving people, and also trucks for moving supplies.

(*c*) *Public Health Service.*—If PHS is to assume responsibility for the Nation's emergency health care, commercial transportation of varying degrees of magnitude would be required for—

(1) Distribution and redistribution of medical care items and functional units.

(2) Distribution and operational handling of sanitation and water treatment materials and devices, including the placement of heavy equipment associated with operations in the sanitation programs, such as earth-moving, burial of the dead, and refuse disposal.

(3) Transportation associated with the necessary supplies, such as food and other commodities required for functional units in a medical care program.

(4) Transportation required for the movement of the nonambulatory ill where indicated to save life or for specialized or long-term treatment.

(5) Transportation for medical personnel for great distances for most effective utilization.

In addition to the commercial-transportation requirements, our activities would require that we be furnished with operational transportation which would be used by health personnel for short distances—i.e., from a health center to an epidemic area, etc. (Mr. Dean Snyder, Defense Coordinator, HEW).

10. Department of State

In the event of an emergency, the State Department would rely on commercial or other transportation for the following purposes:

1. For the movement of its own personnel, including couriers, and for the carriage of its mail and supplies.

2. For the evacuation of its personnel and other noncombatant American nationals from affected areas abroad to safe havens in accordance with existing plans which are scheduled to come into operation in contingencies of this character.

* * * * *

In a different sense, the Department will be relying on commercial or other transportation in the event of an emergency for the fulfillment of programs with which it will be connected but which are not related to serving the Department's own direct needs as, for example, in the following situations:

1. In the event of an emergency the Department of State would become the claimant agency for friendly foreign countries before U.S. "requirements and allocations" bodies, and it would also be the channel through which requests to meet U.S. requirements will be submitted to foreign countries, both of which activities will create demands on commercial or other transportation.

2. In a wider sense the Department's purview could be said to extend to programs for the maintenance of adequate overall civil transportation in the international field, in that the Department participates in the preparation of studies and programs connected with U.S. civil aviation mobilization planning for an emergency, insofar as such planning involves international transportation or coordination with our NATO allies. However, since the Department is not the agency primarily responsible for either the preparation or administration of these programs * * * such information is more readily available from other sources, specifically the Defense Air Transportation Administration (DATA) the agency primarily responsible.

3. Similar plans for the mobilization of merchant ships flying the U.S. flag and that of freindly allies also come within the range of activities of the Department but the coordinating responsibility therefor lies primarily with the Maritime Administration.

(Lawrence C. Vass, Director, Office of Transport and Communications, Department of State.)

TABLE 1

I. TRANSPORTATION OF ICA FINANCED COMMODITIES ON OCEANGOING VESSELS

[Long tons]

	From the United States	From outside the United States	Total
Fiscal year 1957	5,006,000	3,897,000	8,903,000
Fiscal year 1958	3,959,000	4,241,000	8,200,000
Fiscal year 1959 (estimate)	3,800,000	4,200,000	8,000,000
Fiscal year 1960 (estimate)	3,700,000	4,100,000	7,800,000

TABLE 1—Continued

II. VALUE OF ICA COMMODITY SHIPMENTS

	Total	Percent U.S. source
Fiscal year 1957	$1,235,000,000	57
Fiscal year 1958	1,013,000,000	52
Fiscal year 1959 (estimate)	1,000,000,000	50
Fiscal year 1960 (estimate)	1,000,000,000	50

III. COST OF OCEAN FREIGHT OF ICA SHIPMENTS

	Total		Total
Fiscal year 1957	$120,000	Fiscal year 1959 (estimate)	$85,000
Fiscal year 1958	100,000	Fiscal year 1960 (estimate)	75,000

TABLE 2.—*Estimated volume of food movements in 1955 by railroads and motor carriers*

Unit and means	Edible items		Nonedible items	All foods
	Perishables	Others		
Million short tons:				
Railroads	13	105	62	180
Trucks	167	177	97	441
Total	180	282	159	621
Millions of ton-miles:				
Railroads	17,700	52,900	26,800	97,400
Trucks	11,500	7,200	3,900	22,600
Total	29,200	60,100	30,700	120,000
Percent of all foods:				
Tons by rail	2.1	16.9	10.0	29.0
Tons by truck	26.9	28.5	15.6	71.0
Total	29.0	45.4	25.6	100.0
Ton-miles by rail	14.7	44.1	22.3	81.1
Ton-miles by truck	9.6	6.0	3.3	18.9
Total	24.3	50.1	25.6	100.0

PART III

STATUS AND PROJECTION OF OCDM TRANSPORTATION PROGRAM

Following is a general summary of the objective, current status of programs, and projected future activities in the overall OCDM transportation program. To the extent that transportation activities relate to or are included in other emergency programs and activities, they may not be fully reflected in this summary.

(1) *Objective.*—To assure that the Nation's transportation resources are prepared and capable of meeting whatever demands may be placed upon them in time of emergency.

(2) *Plans of action.*—Major program elements follow.

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A. Establish overall policy and program guidance for transportation mobilization and defense

Status.—Transportation policy and programs for civil defense and defense mobilization have been brought together by the consolidation of FCDA and ODM; adjusted new policies are being projected into staff training, industry orientation, and public information activities. For example, transportation material developed for the OCDM staff college has been brought up to date and is to be used in a special seminar on transportation, April 6–10, 1959.

Projection.—Coordination of transportation policy and planning functions within and outside of OCDM will increase. The strengthened OCDM staff will be able to assume increased responsibilities.

B. Coordinate and guide transportation preparedness programs of delegate and other Government agencies and of the transport industry

Status.—Executive and ODM delegations to Federal transport agencies are being reviewed for modification and reissuance. Delegations to the following agencies are involved: (1) Department of Commerce (Bureau of Public Roads, Defense Air Transportation Administration and Maritime Administration), (2) Civil Aeronautics Board, (3) Federal Aviation Administration, and (4) Interstate Commerce Commission. The Interstate Commerce Commission's lack of funds for continuing mobilization work has necessitated assumption by OCDM of some responsibilities for planning for domestic surface transportation on a cooperative basis with ICC.

Arrangements exist for coordinating U.S. and foreign transportation programs, particularly those of Canada and of the NATO countries. Contacts with the transportation industry are maintained at all levels through industry associations, advisory groups, executive reservists, etc.

Besides guidance to States and local governments on transportation planning, standards have been provided governing use of Federal funds for State defense officials and emergency equipment relating to transportation.

Projection.—Transportation programs to be budgeted and undertaken by Federal agencies in fiscal year 1960 include those of all delegate agencies except the ICC. The OCDM transportation staff will continue planning for domestic surface transportation on a basis of cooperation with ICC and with the industry.

The interest of military staffs (OSD, JCS, and MTMA) in transportation and industry support activities, promises to stimulate long-range cooperative efforts.

C. Develop a standby emergency transport organization supported by a strong national defense executive reserve

Status.—Organization for an emergency transport agency has been formulated and key staff and advisers for the national office have been named.

The transportation segment of the national defense executive reserve consists of some 210 members with agency affiliations as follows:

OCDM	8
ICC	86
DATA	27
MARAD	80
BPR	9

In addition, there are some 290 civil defense executive reservists in transportation fields, primarily at the regional level. These are being integrated into the NDER program to the extent feasible. Selection criteria for reservists are being revised to assure their being able to respond should they be called upon in emergency.

Projection.—Emergency organization concepts will be extended to include plans for offices in the eight OCDM regions.

Operational capability of the emergency organization is to be improved by reliance upon existing agencies to sponsor experienced units within the agency.

Executive reservist qualifications will be improved through continued screening and indoctrination.

D. Direct the collection and machine processing of information on national transportation capabilities, current and postattack

Status.—Extensive inventories of transportation resources have been developed for processing at the National Damage Assessment Center. Analysis of various attack patterns shows potential losses industry might sustain.

Projection.—Improvement of transportation resource inventories, updating of data analysis techniques, and applications of data to new problems will continue. An important long-range program includes comparative analysis of transport capabilities and traffic movements requirements in an emergency situation. (See element E.)

E. Receive and analyze traffic requirements information and develop measures for allocations, priorities, and movement control

Status.—Only a start has been made in determining overall wartime needs of shippers for transportation service. Research on commodity flow, and some studies of movement requirements, offer a basis for broadened traffic estimates.

An air priorities system has been established. General priorities for movement have been established for other transport areas.

Projection.—Ultimately it is planned to have a thorough traffic forecast of emergency movements, to include—

(*a*) Troop movements;
(*b*) Population relocations;
(*c*) Military-replenishment supply;
(*d*) Disaster relief (survival items, except food);
(*e*) Food for humans;
(*f*) Liquid fuels;
(*g*) Other special categories (mail, news, AEC, etc.).

This information will be applied against transport capability data (see program element D) for a comprehensive view of transportation.

Establishment of an all-modes shipper-advisory board in each of the OCDM regions is a long-range goal. Such boards would have practical significance for the commercial economy as well as important implications for defense.

F. Conduct resource requirements analyses to determine transportation's needs for manpower, fuel, and supplies

Status.—Data on transportation requirements for manpower, fuel, and supplies for a period of national emergency must be continually revised and brought in line with latest planning assumptions. Exist-

ing data is based in part on obsolete methods of computation, but provide fairly reliable estimates for a longterm period of mobilization.

Projection.—New firm requirements, based on current planning assumptions and developments in the industry, must be estimated for—

(*a*) Transportation manpower, both management and operational;
(*b*) Fuel and lubricants;
(*c*) Spare parts and maintenance supplies;
(*d*) Power and communications to support transportation;
(*e*) Replacement end items, vehicles and craft;
(*f*) Construction supplies, for rehabilitation.

Further refinements of Department of Defense estimates of military requirements for certain end items of transportation equipment (e.g., passenger rail cars) will aid further planning in this regard.

Long-range goal is to have a dependable list of supply items which can be fully justified as being necessary to the support of transportation in emergencies.

G. Promote the strategic improvement of transportation and industry's ability to accomplish missions in the national defense

Status.—Most of the major transportation industries now have defense programs which include measures for plant and employee protection in event of attack. Publications of the industry associations have greatly assisted these programs. However, these programs have had only limited success, due to their passive nature and the inability of industry to see any secondary economic advantages in them.

Projection.—Supportable resource requirements estimates (F above) will be used as justification for taking or recommending action to improve transportation strategic capabilities.

Some of the measures which may be advanced:

(*a*) Encourage management dispersion and records protection as sound business practices.

(*b*) Solution to problem of total abandonment of end items of equipment likely to become critical, e.g., barges, pullman cars, etc.

(*c*) Encourage the development and adoption of special devices and techniques to improve the flexibility, physical integration and operational readiness of transportation, to include—

Load-transfer packets: Pod planes, rollon and rolloff ships, piggyback rail and truck rigs, etc.

Special emergency equipment: Mobile radiological stations, decontamination vehicles, convertible rail cars, etc.

Hardening of mobile equipment: Manufacturing changes to improve protection qualities of passenger vehicles and road-construction machinery.

Containerization: Load containers for interchangeable use between transportation modes.

Operational stockpiling of highway control devices and barriers, repair rails, and emergency fuels.

(*d*) Encourage universal application of size, weight and other physical standards to carriers operating between the various States.

Future legislation recommendations and other actions will be initiated to provide incentives to industries prompting them to channel private efforts into areas which are strategically vital and at the same time profitable and in the public interest. Such projects need not be excessively expensive to the Government in relation to long-range results to be derived.

H. Develop operational plans and action measures for accomplishing transportation emergency tasks

Status.—Transportation sections are contained in Federal plans, in annex 34 to the national plan, and in certain classified plans.

Certain fundamental Federal transportation plans and readiness measures are in existence:

(*a*) Civil reserve air fleet;
(*b*) War air service pattern;
(*c*) National emergency defense airlift;
(*d*) Domestic surface transport controls;
(*e*) Port utilization plan and controls;
(*f*) Ocean-shipping controls;
(*g*) Highway rehabilitation and traffic-regulation plans.

Many special plans and projects for meeting specific conditions of emergency have been developed; for example—

Plan for control of Great Lakes shipping;
Port operational plans covering 100 critical port cities;
Emergency offshore petroleum-loading sites (study);
Plan for evacuation of vessels from U.S. ports (U.S. Coast Guard);
Transportation priority determinations (by various agencies);
Emergency Government bill of lading.

Transportation operational and regional offices have been engaged in extensive planning activities supporting primary programs of survival planning, radiological defense, stockpile management, and disaster relief.

Regional offices have plans for the outloading and transportation of medicines and emergency supplies in warehouses.

Approximately 46 States have fairly comprehensive traffic or transportation plans for defense emergency. Local officials have been assisted in developing emergency bypass routes around target areas.

Projection.—Federal transportation plans and action measures are to be further integrated into or appended to the national plan. This should be accomplished by end of fiscal year 1959.

Work is to be undertaken, particularly at regional level, to obtain States cooperation in improving consistency of local plans and bringing them more in line with national policy and objectives.

I. Participate in operation alert and other exercises and training activities to test plans and improve operational capabilities

Status.—Transportation plans are adjusted following each major exercise to incorporate lessons learned. New technical knowledge is also used as a basis for reevaluating and upgrading plans. Plans call for a single relocation site at which all transportation agencies are expected to relocate in order to appropriately coordinate their testing and emergency activities.

Interagency training activities having important transportation defense programs include those of the Industrial College of the Armed Forces, the OCDM College, and joint Maritime/Navy training programs in atomic defense.

Projection.—The situation of completely overburdened transportation services has yet to be tested. A transportation exercise planned for fiscal year 1959 may bring this into focus. Military-civil transportation exercises of international scope are also contemplated.

A single transportation relocation site should reduce cost of maintaining separate agency installations.

STOCKPILING

Recommendation No. 3, Eighth Annual Report, Joint Committee on Defense Production, reads as follows:

> On October 31, 1957, the Director of the Office of Defense Mobilization announced the appointment of a Special Stockpile Advisory Committee to review the stockpiling policies of the Government and to advise him of its conclusions and recommendations. The report of the Advisory Committee was submitted to the Director of ODM on January 28, 1958, and included recommendations. One of the recommendations related to the declassification of stockpile information. It was stated in the report that in previous years, when achievement of stockpile goals was far from complete, there were two principal reasons for classifying activities in this area: (1) to keep foreign powers from discovering and exploiting specific weaknesses in the materials field; and (2) to protect the Government's negotiating position in purchasing large quantities of materials. After pointing out that the stockpile goals for most materials have been achieved, the Advisory Committee recommended declassification, except for special cases such as: (1) when requirements might be expected to rise sharply, (2) when classified information about military or atomic energy programs might be disclosed, (3) when disclosure of shortages of materials supplied from vulnerable foreign sources might encourage hostile acts, and (4) when necessary to protect the Government's negotiating position. The Advisory Committee stated that "declassification should cover stockpile goals, and the quantities on hand and under contract and the information made public." On August 22, 1958, the chairman of the Joint Committee on Defense Production wrote the Director of the Office of Defense and Civilian Mobilization (now OCDM), called his attention to the conclusions of the Advisory Committee, and requested information on the action contemplated by his office with respect to the recommendation on declassification. The Director of OCDM stated in his reply of August 29, 1958, that the matter was under very active consideration.
>
> The Joint Committee on Defense Production believes, as the Advisory Committee stated, the public should be informed to the greatest extent consistent with national security of the details of the stockpile programs, including periodic reports on goals and of quantities on hand and on order. Determinations should be expedited with respect to the defense need for classifying such information for those materials which are in abundant supply. The information made available through such determinations should be helpful in connection with the consideration of the remainder of the recommendations of the Advisory Committee.

The following report, dated February 20, 1959, was submitted to the Joint Committee on Defense Production by the Director of the Office of Civil and Defense Mobilization.

EXECUTIVE OFFICE OF THE PRESIDENT,
OFFICE OF CIVIL AND DEFENSE MOBILIZATION,
OFFICE OF THE DIRECTOR,
Washington, D.C., February 20, 1959.

Hon. A. WILLIS ROBERTSON,
Joint Committee on Defense Production, U.S. Senate, Washington, D.C.

DEAR SENATOR ROBERTSON: The Eighth Annual Report of the Activities of the Joint Committee on Defense Production, prepared under your chairmanship, states (on p. 2): "The Joint Committee on Defense Production believes, as the [Special Stockpile] Advisory Committee stated, the public should be informed to the greatest extent consistent with national security of the details of the stockpile programs, including periodic reports on goals and of quantities on hand and on order. Determinations should be expedited with respect to the defense need for classifying such information for those materials which are in abundant supply."

In response to this statement of the committee, I wish to amplify my letter of December 10, 1958, with respect to the position I have taken on the subject after a thorough review by agencies concerned and by the staff of this Office.

Steps have been and are being taken to declassify data for individual stockpile materials when this can be done without jeopardy to the national security. The unclassified semiannual stockpile report to the Congress shows which of the inventories have reached or exceeded the basic and maximum stockpile objectives for every material in the stockpile having such objectives (group I of the stockpile list). Continued public release of this information is contemplated. The next semiannual report will also release inventory data on materials for which there are no current or probable stockpile objectives and on nonspecification-grade materials which have objectives.

As I noted in my letter to you of December 10, it has been concluded that the quantities of the specification-grade materials which have official objectives are significant to the Nation's security to such a degree that they should remain classified. The data are so closely related to the planning for and the acquisition and retention of mobilization reserves that their disclosure would be likely to give aid and comfort to the enemy. This conclusion represents the consensus of the Interdepartmental Materials Advisory Committee, and is consistent with Department of Defense security criteria regarding mobilization reserves and with Central Intelligence Agency views.

The strategic stockpile program reflects an appraisal of the detailed types and magnitudes of the materials needed for the national security and of the availability of supply in an emergency to meet these needs. It involves assumptions with respect to the character of the defense effort, including the plans for protection of shipping in an emergency.

The basic stockpile objectives assume reliance on foreign sources of materials in varying degrees, according to the accessibility of source countries, internal conditions in such countries, problems of shipping

materials in wartime, and the extent of U.S. dependence on specific sources of supply.

The U.S. Government, in gaging threats to the national security, makes use of foreign information of the same types involved in the strategic stockpile program. The review of stockpile data classification did not result in any clear evidence that the disclosure of U.S. data still under classification would not be useful to the enemy in evaluating the mobilization readiness position of this country. Even piecemeal disclosures might in many instances be assembled into patterns for making such evaluations. Disclosure of the basic objectives and subsequent changes thereof could enable certain computations to be made which would reveal the strategic assumptions adopted for meeting the requirements for materials.

A further factor of importance is that disclosure of stockpile data selectively on a large scale would involve an increased danger of inadvertent disclosure for defense materials and would tend to highlight the most critical items. This would be especially true of the special-grade-alloy and special-property materials that are being studied intensively in an effort to solve certain troublesome technological problems. Moreover, changes in objectives might be an important clue to the nature and extent of changes in the U.S. defense program.

It is our plan to review stockpile data classifications at least once a year, and I assure you that we shall declassify and publish the data so far as feasible whenever we can be reasonably certain that disclosure would not be detrimental to the Nation's security.

Sincerely,

LEO A. HOEGH.

MATERIALS

Recommendation No. 4, Eighth Annual Report, Joint Committee on Defense Production, reads as follows:

> Since the passage of the Defense Production Act in 1950, the Joint Committee on Defense Production has urged that Defense Production Act inventories and stockpile inventories be kept within the limits of national defense. In the seventh annual report this committee stated that defense needs should be defined in order to distinguish between defense and nondefense needs. The Special Stockpile Advisory Committee has stated that the stockpile should not be used in attempts to regulate the Nation's economy. The Joint Committee on Defense Production continues to believe that purchases of materials for both the Defense Production Act inventory and the stockpile should be limited to defense needs, and that it is not the purpose of these programs to regulate prices or to solve economic problems.

The following report, dated March 20, 1959, was submitted to the Joint Committee on Defense Production by the Director of the Office of Civil and Defense Mobilization.

EXECUTIVE OFFICE OF THE PRESIDENT,
OFFICE OF CIVIL AND DEFENSE MOBILIZATION,
OFFICE OF THE DIRECTOR,
Washington, D.C., March 20, 1959.

Hon. PAUL BROWN,
Chairman, Joint Committee on Defense Production,
House of Representatives, Washington, D.C.

DEAR MR. BROWN: This letter responds to Recommendation No. 4 in the Eighth Annual Report of the Activities of the Joint Committee on Defense Production that purchases of materials for both the Defense Production Act inventory and the stockpile should be limited to defense needs and that it is not the purpose of these programs to regulate prices or to solve economic problems.

Current policy on purchases of strategic materials for the strategic stockpile and DPA inventories is stated in Defense Mobilization Order V–7 which became effective June 30, 1958. This policy provides that basic stockpile objectives, which generally assume partial dependence on oversea sources, shall be attained expeditiously and that maximum stockpile objectives, which assume no dependence on distant oversea sources, shall be reached on a lower priority basis by such means as deliveries under existing contracts, transfers from other Government agencies, purchases with available foreign currencies, barter of U.S. Agriculture surpluses and programs to maintain the mobilization base.

The stockpile procurement directive for the current fiscal year provides for new purchases of only four materials within the basic stock-

pile objectives. These are amosite asbestos, small diamond dies, muscovite block mica, and muscovite film mica. No new purchases are authorized beyond the basic objectives. Deliveries under existing contracts are continuing within the maximum objectives and efforts are made to cancel obligations beyond these objectives. Transfers of surplus materials from other Government programs are negligible. There have been no purchases for the strategic stockpile with foreign currencies. Procurement by barter is authorized in place of cash procurement when domestic procurement is not specifically required by the directive. No materials are being procured against maximum objectives and beyond the basic objectives for the purpose of maintaining the mobilization base, but procurement of diamond dies and jewel bearings against the basic objectives is partly for that purpose. Four materials in the strategic stockpile are being upgraded within established defense objectives in accordance with the Defense Mobilization Order. A fifth material, oxygen-free copper, is being processed from electrolytic copper being delivered under the Defense Production Act, also within an established objective.

I believe that the policy and program as outlined above conform fully to the recommendation of the committee that all procurement of materials for the strategic stockpile and DPA inventories should be for the purpose of achieving defense objectives and not for regulating prices or solving economic problems.

Sincerely,

LEO A. HOEGH.

EXECUTIVE OFFICE OF THE PRESIDENT,
OFFICE OF CIVIL AND DEFENSE MOBILIZATION,
OFFICE OF THE DIRECTOR,
Washington, D.C., May 21, 1959.

Hon. PAUL BROWN,
Chairman, Joint Committee on Defense Production, Washington, D.C.

DEAR MR. CHAIRMAN: This has reference to our letter of March 20, 1959. In paragraph 3 of the letter, there is a sentence which reads as follows: "There have been no purchases for the strategic stockpile with foreign currencies."

Informal conversations between members of your staff and the staff of this office indicate the advisability of providing some clarification with regard to the foregoing.

The sentence is meant to say that no foreign currency purchases were authorized by the Office of Civil and Defense Mobilization or its predecessors for the acquisition of strategic and critical materials for the national stockpile.

However, there are some materials in the national stockpile the producers of which were paid in foreign currencies. These materials were acquired by the use of the 5 percent counterpart funds available to the Government as a result of the post-World War II foreign aid programs. The International Cooperation Administration subsequently declared them "surplus" and they were turned over to the predecessor of the General Services Administration and transferred to the national stockpile.

Sincerely,

LEO A. HOEGH.

EXCHANGE OF INFORMATION ON NUCLEAR WEAPONS EFFECTS

Recommendation No. 5, Eighth Annual Report, Joint Committee on Defense Production, reads as follows:

> It appears to the committee that much information is being developed on the effects of radiation, fallout, blast damage, and related matters, in tests, studies, and through research. This work is being carried out by various departments and agencies, including the military services. The Director of the Office of Civil and Defense Mobilization may request the heads of any and all departments and agencies to advise him concerning these matters. Your committee recommends that the Director of the Office of Civil and Defense Mobilization conduct a study to determine whether the responsibilities with respect to the above subject matter for each department and agency are clearly defined; to determine the extent to which information is being exchanged between departments and agencies, and the manner in which such information is exchanged; and to report the extent to which central direction and coordination are adequate to insure the maximum use of the information developed, including the information which the public should have for their protection. It is requested that the Director of the Office of Civil and Defense Mobilization advise this committee by January 31, 1959, as to the date it is anticipated the report will be forwarded to this committee.

The following report, dated March 31, 1959, was submitted to this committee by the Director of the Office of Civil and Defense Mobilization.

EXECUTIVE OFFICE OF THE PRESIDENT,
OFFICE OF CIVIL AND DEFENSE MOBILIZATION,
OFFICE OF THE DIRECTOR,
Washington, D.C., March 31, 1959.

Hon. PAUL BROWN,
Chairman, Joint Committee on Defense Production,
U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: On January 4, 1959, your committee recommended, among other things, that the Office of Civil and Defense Mobilization conduct a study to determine the extent to which nuclear weapons effects information is being exchanged and utilized by departments and agencies of the Federal Government.

We have just completed a review of problems in this area. A copy of our report, "The Exchange and Utilization of Nuclear Weapons Effects Information Within the Federal Government," is enclosed.

I trust this information will be sufficient to meet committee requirements.

Sincerely,

LEO A. HOEGH.

Report to the Joint Committee on Defense Production From the Director, Office of Civil and Defense Mobilization, on the Exchange and Utilization of Nuclear Weapons Effects Information Within the Federal Government

The Joint Committee on Defense Production, in its January 4, 1959, report on activities of the Office of Civil and Defense Mobilization, indicated eight specific areas in which additional investigation was needed. This report concerns item 5 of the recommendations—exchange and utilization of nuclear weapons effects information within the Federal Government. The committee's recommendation is repeated here as a basis for the OCDM report.

"It appears to the committee that much information is being developed on the effects of radiation, fallout, blast damage, and related matters, in tests, studies, and through research. This work is being carried out by various departments and agencies, including the military services. The Director of the Office of Civil and Defense Mobilization may request the heads of any and all departments and agencies to advise him concerning these matters. Your committee recommends that the Director of the Office of Civil and Defense Mobilization conduct a study to determine whether the responsibilities with respect to the above subject matter for each department and agency are clearly defined; to determine the extent to which information is being exchanged between departments and agencies; and the manner in which such information is exchanged; and to report the extent to which central direction and coordination are adequate to insure the maximum use of the information developed, including the information which the public should have for their protection." [1]

For purposes of this report, information on the effects of radiation fallout, blast, thermal damage, and related matters, whether developed through tests, studies, or research, will be grouped under the heading, "Nuclear Weapons Effects Information."

DEVELOPMENT AND DISSEMINATION OF NUCLEAR WEAPONS EFFECTS INFORMATION

As in other areas of scientific information, development and dissemination of nuclear weapons effects information "is the result of evolution rather than any preconceived system or plan," [2] In conjunction with nuclear weapons development tests, a large body of effects information has been developed since World War II. Since atomic energy matters are Government controlled and because of the high security classification assigned to the program, essentially all nuclear weapons effects information is held by departments and agencies of the Federal Government. While much raw data awaits refinement and utilization, considerable information is being made available to agencies concerned with nonmilitary defense programs and to the public in general.

[1] "Preparedness Problems and the Status of Defense Mobilization," Joint Committee on Defense Production, Jan. 4, 1959.
[2] "Improving the Availability of Scientific and Technical Information in the United States," President's Science Advisory Committee, Dec. 7, 1958.

I. ARE RESPONSIBILITIES FOR THE DEVELOPMENT OF WEAPONS INFORMATION FOR EACH DEPARTMENT AND AGENCY CLEARLY DEFINED?

Responsibility for the development of nuclear weapons effects information by departments and agencies of the Federal Government stems from interpretation of agency responsibility rather than from clearly defined assignment. One major exception is the Armed Forces special weapons project, Department of Defense, which "evaluates and disseminates weapons effects data to the services and other Government agencies." [3]

Development of information on nuclear weapons effects began under Department of Defense sponsorship during World War II. The Atomic Energy Commission was established in 1946 to make "maximum contribution to the common defense and security, the development, use, and control of atomic energy * * *." [4] In 1951, with the creation of the Federal Civil Defense Administration, there arose the requirement for weapons effects information in developing the nonmilitary defense aspects of the national defense program. In addition to the agencies that entered the field independently, delegation of civil defense responsibility by FCDA (OCDM) to other departments and agencies of the Government has brough a large segment of the Federal Establishment into the weapons effects information program.

Specific agency resonsibility for development of weapons effects information has emerged from participation in nuclear weapons test programs. Because of the costs involved, most effects tests are held in conjunction with the AEC weapons development. In the past, test activities of each participating agency were carefully coordinated into the overall test program, and each agency was permitted to utilize test results obtained by other agencies, within certain security limitations.

The following descriptions outline typical department and agency responsibilities in the atomic energy field:

Department of Defense

While many branches of the Department of Defense are involved in the development of information on the effects of nuclear weapons, the major source of information is the Armed Forces special weapons project, which "furnishes support to the Army, the Navy, and the Air Force in the field of atomic weapons by providing technical, logistic, and training services. In the area of technical services, AFSWP prepares preliminary plans and budget estimates for military phases of atomic weapons tests; coordinates and integrates service requirements for data obtainable through field tests; evaluates and disseminates weapons effects data to the Services and other Government agencies; provides current technical publications for the inspection, assembly, handling, and storage of atomic weapons * * * and provides technical training for individuals and special weapons units of the Services in the assembly, handling, storage, maintenance, and safety and hazards of atomic weapons. It also prepares instructional material to support Service conducted atomic weapons training." [5]

[3] U.S. Government Organization Manual, 1958-59.
[4] Ibid.
[5] Ibid.

In the medical effects field, the Bureau of Medicine and Surgery, Department of the Navy, "initiates and directs research * * * in the medical aspects of atomic and other special weapons defense." [6]

Atomic Energy Commission

The Atomic Energy Act of 1956 provides for the following major programs in the field of atomic energy, "(1) a program of conducting, assisting, and fostering research and development in order to encourage maximum scientific and industrial progress, (2) a program for the dissemination of unclassified scientific and technical information and for the control, dissemination, and declassification of restricted data, subject to appropriate safeguards, so as to encourage scientific and industrial progress. * * *" [7] Much of the weapons effects information available from the AEC has been developed through civil effects tests sponsored by the Division of Biology and Medicine.

Office of Civil and Defense Mobilization

The Federal Civil Defense Administration (now combined with the Office of Defense Mobilization to form the Office of Civil and Defense Mobilization) "prepares, sponsors and directs national civil defense plans and programs. It arranges for studies in such areas as shelter design, effects of nuclear weapons on structures; methods of treating casualties resulting from atomic, biological, chemical, and other forms of attack; and the development and standardization of civil defense equipment and facilities. It provides for necessary civil defense communications and for a nationwide system for warning the civilian population of enemy attacks. It procures and arranges for the storage, in strategically located warehouses, of emergency civil defense supplies and equipment, and advises the States in the procurement of such supplies and equipment * * * is authorized to disseminate civil defense information by all appropriate means in order to obtain public understanding of and participation in the program." [8]

OCDM delegate agency activities

The Director, OCDM, looks to other agencies of Government to pursue nonmilitary defense preparations inherent in their normal functions. In carrying out these responsibilities, these agencies develop and interchange nuclear effects information. Some of the nonmilitary defense assignments of selected agencies are:

Department of Health, Education, and Welfare.—Functions deal principally with "health and welfare problems under attack conditions, development of civil defense training materials for incorporation in the curriculums of schools and colleges, and the development of shelter and protective measures for educational institutions, hospitals, and other health facilities." [9]

Department of Agriculture.—Responsibility includes nuclear weapons effects on biological specimens, foodstuffs, and both raw and processed agricultural products. The Forest Service is concerned with the prevention and control of fires caused by enemy attack in rural areas.

Department of Commerce.—The U.S. Weather Bureau conducts studies on the prediction of fallout and makes daily weather forecasts to indicate the direction and distance fallout would be carried from ground zero in the event of enemy attack.

[6] Ibid.
[7] Ibid.
[8] Ibid.
[9] Annual Report, Federal Civil Defense Administration, 1957.

The National Bureau of Standards, under contract with the OCDM, is conducting studies of phenomena relating to radiation shielding and protection.

II. MANNER AND EXTENT TO WHICH NUCLEAR WEAPONS EFFECTS INFORMATION IS EXCHANGED WITHIN THE FEDERAL GOVERNMENT

During its early development, nuclear weapons effects information was needed by relatively few departments and agencies. Since that time, however, the assumption of enlarged responsibility in the field and the availability of additional data is involving more agencies in the program.

The problem of effective dissemination of scientific information, including that relating to nuclear weapons effects, is succinctly highlighted in a December 7, 1958, report of the President's Science Advisory Committee.

"The system by which scientific information is disseminated is the result of evolution rather than any preconceived system or plan. Its defects stem largely from its inability to keep pace with the increasing volume of scientific results and literature and the absence of techniques geared to the newer forms of scientific information, such as Government reports.

"* * * Falling outside scientific information that is published, cataloged, and indexed in the normal way, is a steadily mounting volume of Government research reports. It is conservatively estimated that upward of 50,000 scientific reports (at least half of which bear no security classification) are issued annually by the private and Government laboratories that conduct federally sponsored research. Many of the newest and most significant scientific data are to be found in these reports."[10]

ACQUISITION OF NUCLEAR WEAPONS EFFECTS INFORMATION

Most of the nuclear weapons effects information now in use by the OCDM has been made available through the following sources:

Department of Defense

Armed Forces special weapons project.—Has been assigned responsibility for providing OCDM with nuclear weapons effects information. This is the OCDM's greatest source of classified information in the weapons effects field.

Armed Services Technical Information Agency.—All weapons effects and allied information available from the armed services (classified and unclassified) are made available through this Agency by establishing "areas of interest." This is a continuing acquisition process.

DOD research contract reports.—Research reports published by DOD contractors are made available upon request or through the DOD–OCDM Liaison Office in the Office of the Secretary of Defense (Manpower, Personnel, and Reserve). Reports include (1) "Effects on Structures," (2) "Effects on Materiel and Equipment," (3) "Biological Effects," (4) "Radiation Detection Instruments and Techniques," (5) "Cratering and Earth Shock," (6) "Particle Forecast Patterns," (7) "General Shock, Blast, Radiation, and Thermal Effects,"

[10] "Improving the Availability of Scientific and Technical Information in the United States," President's Science Advisory Committee, Dec. 7, 1958.

and (8) other reports that have application to ongoing OCDM programs.

"The Effects of Nuclear Weapons," prepared by the Department of Defense and published by the Atomic Energy Commission, June 1957, is an updated version of "The Effects of Atomic Weapons," revised, September 1950. This is the most authoritative unclassified handbook available on nuclear weapons effects. It provides much of the information needed to prepare educational materials designed for public use.

Atomic Energy Commission

The Atomic Energy Commission, as a matter of routine, through its Civil Defense Liaison Office, provides a wide range of informational materials and consultant services in the field of atomic energy. They apprise OCDM of reports of interest in the field and publish contractors' and other report abstracts through the Nuclear Science Abstracts series. Nuclear Science Abstracts is published by the AEC and covers unclassified research reports of the AEC, material appearing in unpublished research reports of other Government agencies, universities, industrial research establishments, and in the technical and scientific journals. Materials cited are available through the Office of Technical Services, U.S. Department of Commerce.

Foreign weapons effects reports.—Received under the technical cooperation program are, for the most part, made available by the AEC Technical Information Service, Oak Ridge, Tenn. These reports provide weapons effects information on tests conducted by the United Kingdom.

OCDM sponsored research

In addition to effects information developed through participation in nuclear weapons test programs, OCDM sponsors research designed to meet its own specific requirements. In the refinement of effects data, as distinguished from other civil defense research, scientific investigation is aimed at improvement of knowledge on the basic physical characteristics of blast, thermal, and initial and residual nuclear radiation, biological effects, fallout distribution phenomena and development of instruments and systems for effecting rapid and wide-scale fallout monitoring. Additional research is aimed at providing advanced engineering data and prototype designs for the most efficient structures, equipment, methods and systems, commensurate with National civil defense requirements.

III. EXTENT TO WHICH CENTRAL DIRECTION AND COORDINATION ARE ADEQUATE TO INSURE THE MAXIMUM USE OF THE NUCLEAR WEAPONS EFFECTS INFORMATION DEVELOPED

Coordination of information on the effects of nuclear weapons was relatively simple during the period when few reports were available and only a small number of agencies needed the information. Today, however, as in other areas of scientific and technical information, channels of dissemination are becoming inadequate to handle the ever increasing volume of weapons effects data.

In response to a March 6, 1959, letter from the Director of Research, OCDM, to the National Science Foundation, requesting a statement with regard to coordination responsibilities and activities of the NSF

in the exchange of scientific information, Dr. Burton W. Atkinson, Office of Scientific Information Service, said that NSF program responsibilities are "* * * based upon section 3(a)(5) and 11(g) of the National Science Foundation Act of 1950; title IX of the National Defense Education Act of 1958; and the President's letter of January 22, 1959, to Dr. Waterman.

"The National Science Foundation Act authorizes and directs the Foundation to 'foster the interchange of scientific information among scientists in the United States and foreign countries.' The National Defense Education Act establishes in the Foundation a Science Information Service to '(1) provide, or arrange for the provision of, indexing, abstracting, translating, and other services leading to a more effective dissemination of scientific information, and (2) undertake programs to develop new or improved methods, including mechanized systems, for making scientific information available.' " [11]

On December 7, 1958, the President's Science Advisory Committee, in an effort to improve the availability of scientific and technical information in the United States, recommended the "establishment of a science information service of the coordinating type which would strengthen and improve the present system by taking full advantage of existing organizations and the specialized skills of persons with long experience in the field." [12]

On December 11, 1958, the National Science Foundation established the "Science Information Service, pursuant to provisions of the National Defense Education Act of 1958 and as directed by President Eisenhower on recommendation of his Science Advisory Committee." [13] In a discussion of the methods by which the Science Information Service expects to achieve its objectives, Dr. James R. Killian, Jr., Chairman of the President's Science Advisory Committee, said, "* * * the Science Information Service will be responsible for promoting closer cooperation among scientific information services both within and outside Government. It will stimulate and strengthen existing private programs wherever possible and supplement these activities as needed. The Service will work closely with all Federal agencies, including the Library of Congress, the National Library of Medicine, and the Department of Agriculture, which maintain large bodies of scientific literature and the Office of Technical Services of the Department of Commerce, which disseminates Government reports to the public * * *.

"The National Science Foundation has established, jointly with the National Bureau of Standards, a center to bring together research and development data on methods and equipment for the automatic processing of scientific information, and to permit closer cooperation between groups in industry, private foundations, universities, professional societies, and Government agencies concerned with developing and improving methods for rapid and efficient handling of large volumes of information." [14]

On January 22, 1959, the President wrote to Dr. Waterman, National Science Foundation, asking NSF to take the leadership in

[11] Letter dated Mar. 16, 1959, from Dr. Burton W. Atkinson, NSF, to Director of Research, OCDM.
[12] White House press release, Dec. 7, 1958.
[13] NSF press release, NSF 58-179, Dec. 11, 1958, Science Information Service Established by National Science Foundation.
[14] Ibid.

the interchange of scientific information, and indicating that the full cooperation of all Federal agencies in this effort was desired, as follows:

"On December 7, I approved a plan proposed by my Science Advisory Committee, designed to help meet the critical needs of the Nation's scientists and engineers for better access to an expanding volume of scientific information. The committee outlined in its recommendations a program calling for the review, coordination, and stimulation, on a nationwide basis, of activities in the areas of primary and secondary publications, scientific data centers, unpublished research information, storage and retrieval, and translation by mechanical means. I am asking the Foundation to carry the responsibility for the successful implementation of this plan.

"In fulfilling this responsibility it will be necessary for the National Science Foundation to take the leadership for the accomplishment of effective coordination of the various scientific information activities within the Federal Government. At least 10 Federal agencies are engaged in abstracting and indexing, translating, preparing technical reports, and conducting research related to information needs, and I urge that the fullest use be made of existing information services, both public and private, in supplementing rather than supplanting present efforts. The National Science Foundation has ample legal authority to coordinate Federal activities, as well as to broaden its own program, in the area of scientific information.

"By a copy of this letter I am asking that all Federal agencies, whose programs involve scientific information, give full cooperation and assistance to the Foundation in improving the Government's program in this effort, and that the Department of State take the lead in encouraging cooperation among the U.S., foreign, and international scientific information organizations."

Federal Advisory Committee on Scientific Information

Following receipt of the President's letter, the National Science Foundation established the Federal Advisory Committee on Scientific Information. Representatives of 17 Federal agencies have been named to the advisory group. The new Committee will "consult with and make recommendations to the Foundation's Science Information Service on the development of policies and programs designed to foster coordination among Federal agency scientific information activities. The Committee will provide an integrated approach to the Government phase of the intensified national science information effort called for by the President's approval of recommendations of his Science Advisory Committee." [15]

IV. INFORMATION THE PUBLIC SHOULD HAVE FOR ITS PROTECTION

Soon after its organization, the FCDA (now OCDM) began a concentrated public information program designed to acquaint the public with the many aspects of nonmilitary defense. Rapid development of nuclear weapons and their ever-increasing damage potential has necessitated constant revision and updating of weapons effects information. It is the opinion of OCDM that adequate unclassified

[15] NSF news release, NSF 59-105, Jan. 20, 1959.

information on nuclear weapons effects is available for its public information programs.

CONCLUSIONS

The President's directive to the National Science Foundation to take the leadership in bringing about effective coordination of the various scientific information activities within the Federal Government will facilitate the exchange of nuclear weapons effects information.

ADVANTAGES AND DISADVANTAGES OF DISPERSAL

Recommendation No. 7, Eighth Annual Report, Joint Committee on Defense Production, reads as follows:

> The Defense Production Act, as approved on June 29, 1956, was amended by adding language to the statement of policy to give congressional approval to dispersal. The act relates dispersion to the construction of Government-owned industrial facilities, Government contracts, loans, and the procurement of goods and services. Your committee recommended in the previous annual report that the Office of Defense Mobilization review the results of Operation Alert 1957 for the purpose of determining the extent to which industrial facilities essential to national defense are vulnerable to attack, and that this committee be furnished with a report of the information revealed by Operation Alert 1957 relating to the advantages or disadvantages of dispersal in the event of an attack. This committee has not been advised as to the action taken with respect to this recommendation. It is recommended that a report covering the above portion of recommendation No. 5 in the seventh annual report be submitted to this committee not later than March 31, 1959, and that such report include similar information for Operation Alert 1958.

The following report, dated May 28, 1959, was submitted to this committee by the Director of the Office of Civil and Defense Mobilization.

EXECUTIVE OFFICE OF THE PRESIDENT,
OFFICE OF CIVIL AND DEFENSE MOBILIZATION,
OFFICE OF THE DIRECTOR,
Washington, D.C., May 28, 1959.

Hon. PAUL BROWN,
Chairman, Joint Committee on Defense Production,
Washington, D.C.

DEAR MR. CHAIRMAN: The Joint Committee on Defense Production, in its eighth annual report, requested the Office of Civil and Defense Mobilization to submit a report reviewing the results of Operations Alert 1957 and 1958 for the purpose of determining the extent to which industrial facilities essential to national defense are vulnerable to attack, together with the information revealed relating to the advantages and disadvantages of dispersal in the event of an attack.

I am happy to submit the enclosed analysis in response to the committee's request.

Sincerely,

LEO A. HOEGH.

Executive Office of the President, Office of Civil and Defense Mobilization—Analysis of Industrial Vulnerability Arising From Operation Alert 1958 and the Advantages and Disadvantages of Dispersion

In its eighth annual report, the Joint Committee on Defense Production asked for an analysis of Operations Alert 1957 and 1958 to determine the extent to which industrial facilities essential to national defense are vulnerable to attack, and indicating the advantages or disadvantages of dispersal in event of an attack.

Because data from Operation Alert 1957 do not permit a satisfactory analysis of this sort, this paper concentrates on a general analysis of the effects on industrial facilities of the attack of Operation Alert 1958. Following that is a brief discussion of the advantages and disadvantages of dispersion and of the actions taken by the executive branch to encourage dispersion.

It is the policy of the Federal Government to encourage the widest possible geographical dispersion of industrial facilities, consistent with existing law and the maintenance of a sound economy. This policy has been expressed by the Congress in the 1956 amendments to the Defense Production Act, and by the executive branch in Defense Mobilization Order I–19, January 1956.

RESULTS OF OPERATION ALERT 1958

A statistical analysis was made of damage to selected industries in Operation Alert 1958. The results must be evaluated with great caution, however, because the major purpose of the exercise, and the pattern of attack, was to provide training for State and local civil defense organizations. Individual targets were selected by the State civil defense directors.

The statistical analysis was confined largely to the measurement of capacity losses. However, an effort was also made to estimate probable production losses. Because of the importance of clearly differentiating between the two, some discussion of methodology is warranted. We refer to analysis of capacity losses as horizontal analysis, and analysis of production losses as vertical analysis.

Horizontal analysis involves an assessment of plant capacity losses of specific types without reference to the interdependence of the various types of capacity. Thus, by plotting on a map the areas of blast damage and spotting the known locations of all plants of a given industry, we can conclude that this industry has been, say 50 percent destroyed. It does not follow, however, that we can expect production to be at 50 percent of preattack capacity. To assess this we have to consider for each end-item plant, what happened to all of its suppliers, its labor force, its source of power, the transportation required to bring in its raw materials and components, etc. Assessment of the probable production of end items is called vertical analysis, since it involves following the chain of production back to subcontractors and sub-subcontractors and tracing back each of the production factors.

As an example of this difference between horizontal and vertical analysis, it would be possible to lose a truck assembly plant without loss of truck output, so long as the flow of materials and components could be diverted to other assembly plants or improvised facilities.

By contrast, if the only supplier of a specific component were bombed out, production could be lost completely even though assembly plants and all other sources of components and material supplies remained functioning.

The industrial complex may be likened to a large machine consisting of a series of meshes of many gears. An attack would create breaks in these meshes. Some of the gears would be destroyed immediately, representing the plants directly affected by blast and fire. Many gears untouched by the bombs would also stop turning; they represent the further areas denied by fallout and, if close enough to the directly hit areas, by the resulting dislocation. Other gears would continue spinning for awhile, but when supplies on hand ran out, or the markets to which they are suppliers ceased to exist, they would stop too. These represent unhit areas not affected by blast, fire, or fallout. Accordingly, in analyzing post-attack manufacturing production, as distinguished from static capacity, the vertical analysis is the meaningful approach. At present, damage analysis capability within OCDM is limited largely to horizontal analysis.

Funds have not been available for the statistical data required to permit vertical analysis of the interrelation of suppliers and contractors in the production mesh. Therefore, while we can make an analysis of the bomb damage suffered by plants on a horizontal basis, we cannot adjust this analysis by the damage which occurred to raw materials suppliers, transportation, power, etc. We did attempt to estimate the effect of this corollary damage in Operation Alert 1958, but the estimates must be considered with great caution because they are based on inadequate data.

The simulated attack pattern of Opal 1958 effected a rupture in the Nation's intricate production mesh. The time required to reestablish this production mesh became the most limiting factor in the resumption of production.

Production losses were greatly increased as a result of fallout. The effect of fallout in Operation Alert 1958 was to make plants, otherwise undamaged, unavailable for production for varying periods of time until there had been sufficient radioactive decay.

Fourteen days after attack.—At this time, as measured by the number of employees involved, available manufacturing capacity was relatively small. The bulk of this production would come from those industries which have the least interdependence. Interdependence, for example, is relatively low for the production of items such as milk or bread in undamaged areas, and is very high for intricate military "hardware" such as a missile. The available production capability was largely concentrated in the leather, textile, and lumber and wood product categories.

Thirty days after attack.—The availability of plants resulting from the further decay of fallout by 30 days after the attack increased. Production was primarily concentrated in the same industries as listed above.

Ninety days after attack.—The continuing decay of radioactive contamination resulted in the availability of an increased number of plants by 90 days after the attack. The pattern of industrial recovery was beginning to broaden.

Later recovery.—At the end of 6 months, a still greater number of the plants would have been available. Many industrial plants would be rapidly regaining some part of their capability by this time.

However, industries which would have primary roles in the survival and recovery periods—food processing, chemicals and allied products (drugs and medicines), petroleum products, and electrical machinery and transportation equipment—suffered severe losses. These would have made limited recovery by the end of 6 months and industries dependent on their products would have continued to be retarded.

It had been expected that, with severely damaged production capacities, there would have been excesses of many materials, components, and services. Materials in the strategic and critical stockpile were not seriously affected. Analysis of the damage, however, indicates shortages of electric power, petroleum products, transportation services, and manpower. The majority of the mining industries, including coal, were relatively unharmed. On the other hand, steel ingot capacity was badly damaged.

In addition to this general overall analysis of damage to U.S. industrial production, the Office of Civil and Defense Mobilization, assisted by the Business and Defense Services Administration, carried out an intensive supply-requirements analysis of approximately 60 survival items. This analysis was made on a regional basis, and covered industrial production and inventories of finished goods at the manufacturing and wholesale levels. It demonstrated that some regions were so short of supplies and had such restricted production capability that their very survival and recovery would have been dependent upon transportation being available for interregional movements of goods and people.

ADVANTAGES AND DISADVANTAGES OF DISPERSION

The analysis of this "exercise" attack pattern suggests that while additional dispersion could have been helpful in reducing industrial vulnerability, of perhaps greater importance would be steps to protect the work force from fallout and to improve the capability of surviving plants to continue operating despite the loss of some normal sources of supply.

Clearly, the physical protection of industry is improved by the greatest practicable degree of dispersion combined with adequate protective facilities. Through effective industrial dispersion, the vulnerability of industrial resources is reduced, the probability of survival is enhanced, and the probable rate of postattack recovery is increased. This principle is supported not only by the results of Operation Alert 1958 but also by many other studies which show that the industries which are more dispersed suffer less damage and recover more rapidly than the industries which are geographically concentrated.

The objective of industrial dispersal can only be achieved when industrial and economic factors contribute to this purpose. To a significant extent, the development and growth of the economy itself results in considerable dispersal as new plants are located in new or outlying areas on the basis of normal economic advantages resulting from access to raw materials, labor supply, and new and expanding markets. There is a continued trend of maximum growth rates in the West and South with slower growth in the Northeast and Middle Atlantic regions. This causes a continuing diffusion of industry throughout the United States resulting in reduced vulnerability to attack.

However, normal economic factors also act as a powerful spur to the expansion of capacity in the areas that are already highly concentrated. Several basic changes are taking place in the size and distribution of metropolitan centers throughout the United States. These trends, established by census data through 1950, and extended to 1975, are more likely to continue than they are to be reversed. The data indicates a rather significant increase in our metropolitan population by 1975. It is very likely that by 1975, we may have residing in about 200 metropolitan areas of 100,000 or larger, a population larger than the total U.S. population in 1940.

The faster rates of suburban as opposed to central city growth are likely to be maintained for the coming decades. In 1950, about 42 percent of the total population living in the principal metropolitan areas of the United States were residing outside the central city boundaries, with 58 percent of this population residing within the central city. By 1975, if current trends hold up or even diminish slightly, less than half of the populations of metropolitan areas will reside within the central city.

It is important that we develop a capability on the part of each metropolitan area to operate as independently as possible. Local self-sufficiency should be a goal of our planning at all levels.

Countless economic forces press constantly for growing interdependence as our national economy becomes more complex. Nevertheless, each step taken toward local self-sufficiency, with respect to the activities and resources needed for survival, will be a net gain to our national security.

One additional and very important factor bearing on industrial vulnerability is the widespread radioactive fallout which would accompany any nuclear attack and affect to some degree most sections of the United States. Physical equipment and buildings are subject only to blast and thermal damages, whereas the workers are subject to fallout as well. Accordingly, the country cannot reap maximum benefits from industrial disperal without adequate performance in carrying out the national fallout shelter program. Unless our human resources are protected we might have a relative surplus of industrial facilities after an attack due to the greater losses among people.

ACTIONS TO ENCOURAGE DISPERSION

During recent years, the Government's efforts to encourage dispersion, coupled with normal economic forces, have resulted in the erection of new production capacity outside of probable target areas. In addition, the increase in U.S. industrial capacity during recent years has been extensive, and has included facilities for a great variety of end items, components, production and transportation equipment, and materials. This extensive and diverse capacity has reduced U.S. dependency on single plants for important components of production, and has increased the probability that at least one or more sources of production of important items will survive a heavy nuclear attack.

The incentives available for use by the Federal Government for this program are limited and accordingly, primary reliance has been placed upon information and education to persuade industrial executives to consider the national security value of dispersion in making

plant location decisions. To the extent feasible, this has been supplemented by the use of rapid tax amortization incentives and as a consideration in military procurement.

These activities have been reported to the Joint Committee in past annual reports and, in detail, in the report of May 20, 1957, entitled "Reducing Our Vulnerability to Attack." The following comments, therefore, will serve only to summarize and update information previously reported.

Information and education.—The importance and value of dispersion has been emphasized in a large number of publications and speeches. The primary agent of the Federal Government to guide industry with respect to industrial dispersion is the Office of Area Development in the Department of Commerce. This Office provides positive advice and assistance to industrial companies and Government agencies in finding suitable dispersed sites. During 1958, the Office of Area Development provided dispersion advice on 243 requests; 130 from private industry, 46 involving Government facilities, and 67 involving Federal emergency relocation sites.

Rapid tax amortization.—The requirement for dispersion in major new expansions receiving rapid tax amortization has resulted in the placement of substantial amounts of new capacity in dispersed locations. Since few expansions are eligible for fast tax writeoffs under current authority, this program does not now contribute substantially to dispersion. However, from July 1, 1952, through January 1, 1959, of all proposed expansions seeking tax amortization assistance which came under the dispersion criteria,[1] 73 percent by value were certified for dispersed locations.

Exceptions were granted for approximately 12 percent and the rest were denied. The actual amounts are set forth in the following table:

[1] As a matter of administrative convenience, dispersion has been required for major expansions defined as
(a) New facilities estimated to cost $1 million or more; or
(b) Expansions of existing facilities estimated to cost more than $5 million, or increasing existing capacity by 50 percent or more and costing $1 million or more.

Application of dispersion criteria to rapid tax amortization program (July 1, 1952–Jan. 1, 1959)

	Number	Estimated cost
Projects to which dispersion criteria were applicable	911	$9,679,500,000
Projects in which the proposed sites were found to conform to dispersion criteria, i.e. not in congested urban areas or near major military installations or key industrial facilities	709	7,052,500,000
Exceptions granted to dispersion criteria	132	1,179,000,000
Projects denied certification for failing to meet dispersal standards	70	1,448,000,000

Military procurement considerations.—Procurement agencies provide for dispersion as one consideration in the placing of contracts. The effect of this upon dispersion is necessarily marginal, because of the need to consider other factors, such as price, and the fact that procurement is concerned primarily with capacities in place rather than new construction. There have been no substantial changes in this program since our May 20, 1957, report.

GUARANTEED LOANS

Recommendation No. 8, Eighth Annual Report, Joint Committee on Defense Production, reads as follows:

> On November 8, 1956, the Office of Defense Mobilization issued a press release in which it was stated that the incentive program had been under review as a result of a proposal of a domestic company for a direct loan to assist in financing the company's project. It was indicated in the press release that Government loans had been ruled out as an incentive, and that the incentives in effect were rapid tax amortization and Government purchase contracts. Guaranteed loans were not mentioned in the press release as having been ruled out or as being in effect. In the previous annual report your committee recommended that the Office of Defense Mobilization clarify its policy with respect to the use of guaranteed loans for carrying out the purposes of the Defense Production Act. This committee has not been advised of the action taken. This committee recommends that the Office of Civil and Defense Mobilization advise this committee as to the current policy on guaranteed loans not later than March 31, 1959.

The following report, dated April 3, 1959, was submitted to the Joint Committee on Defense Production by the Director of the Office of Civil and Defense Mobilization.

APRIL 3, 1959.

Hon. PAUL BROWN,
Chairman, Joint Committee on Defense Production,
Washington, D.C.

DEAR MR. BROWN: This is in response to recommendation No. 8, dealing with the policy of this office with respect to use of guaranteed loans for carrying out the purposes of the Defense Production Act, which was included in the Eighth Annual Report of the Joint Committee on Defense Production.

The policy of the Office of Civil and Defense Mobilization on the use of guaranteed loans is the same as that which has been in effect since the latter part of 1953. This policy is:

> (*a*) New commitments for defense loans, guarantees, and participations as provided for under section 302 of the Defense Production Act, as amended, shall not be made except in connection with approved programs which have been certified by ODM as requiring contractual commitments under section 303 of the Defense Production Act, as amended, and then only when it is determined by the contracting officer that defense requirements cannot be met otherwise without increased cost to the Government;

(*b*) Defense loans, guarantees, or participations already approved by the lending agencies under section 302 of the Defense Production Act, as amended, may be increased or decreased as determined to be necessary by the lending agencies to protect the financial interest of the U.S. Government.

It should be noted that loans OCDM has been called upon to guarantee in the past have been for capital investment for the expansion of production capacity or supply, and have been made only when private loans were not available on reasonable terms. The risk involved for this type of loan guarantee is considerably greater than for loan guarantees granted by authorized procurement agencies under section 301 of the act to expedite performance of contracts.

There have been relatively few applications for such guarantees since mid-1953. This has been due to:

(*a*) Private loans and financing have usually been readily available to holders of tax amortization certificates.

(*b*) Small Business Administration loans have replaced small business applications under the Defense Production Act.

(*c*) Approved OCDM expansion programs to meet mobilization requirements have tapered off at a rapid rate in the last few years, and, under present concepts of mobilization planning, we do not anticipate any sizable activity in this field. Action programs designed to meet the contingencies of nuclear attack on this country must provide for stockpiles of supplies in being. The emergency requirements of this condition cannot be met by business expansion of production capacity.

Since 1953, the only loans that have been requested of and approved by this agency were for capacity restoration purposes and more recently for research and development work. Several sizable loans have been requested in the past few years for such purposes as construction of interstate pipelines but these have been denied because of lack of essentiality of the construction for defense purposes.

There have been increases in loans made prior to 1954, usually for purposes of increasing working capital. This is the responsibility of the landing agencies as set forth in our policy.

The status of all section 302 loans as of September 30, 1958, is as follows:

[Figures in thousands of dollars]

	Loans authorized	Disbursed	Canceled
Department of the Treasury	[1] $387,946	$298,825	$88,810
Export-Import Bank	45,262	45,121	141
Total	433,208	343,946	88,951

[1] $311 undisbursed.

I trust this letter answers all of your questions concerning our policy in this matter. If you desire more information, please call upon me.

Sincerely,

LEO A. HOEGH.

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